

Chapter 10

Data Viewing Software

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10.1 Overview of GTAPView

The core data file of the GTAP Data Base consists of GTAP *value flow* variables. When opening the core data file for viewing with *ViewHAR* (see section 10.2 for how to use ViewHAR), you will be able to select and view only one of the value flow variables at a time. For example, double-clicking on EVOA will retrieve a 5 x 66 matrix showing the values of the 5 endowment commodities evaluated at agent's prices across 66 regions. The core data file is the data base actually used by the GTAP model in general equilibrium simulations. It is the file *basedata.har* created by GTAPAgg (chapter 9.A) or *gdat.har* generated by the command line aggregation program (chapter 9.B).

Alternatively, you may also view the GTAP data base using the *GTAPView*-generated summary data file (*baseview.har* created by GTAPAgg; *gview.har* from the command line aggregation program). The file contains the same information but it provides a more intuitive and user-friendly summary view of the GTAP core data file. Matrices are structured around the basic accounting relationships underpinning the model and they are labeled and grouped so as to ease comparisons and interpretations. Table 10.1 reports the data headers in the summary data file.

The data summary file is generated by the GTAPView program. The executable program is created from a TABLO-generated file, *gtapview.tab*, which transforms the core data file or the updated data file from a simulation into the GTAPView format. The GTAPview program also generates a tax rates summary file (*baserate.har* created by GTAPAgg; *gtax.har* from the command line aggregation program). Table 10.2 reports the data headers in the tax rates file.

Table 10.1 Data Headers in the GTAPView Data Summary File

Header	Dimension	Description
AG01	$r \times$ GDPEXPEND	GDP from the expenditure side
AG02	$r \times$ GDPSOURCE	GDP from the sources side
AG03	$e \times p \times r$	Sources of factor income by sector
AG04	$r \times$ CAPACCT	Capital account: $S - I = X - M$
AG05	$r \times$ CURACCT	Current account: $X - M = S - I$
AG06	r	Capital stock by region
BI01	$t \times r \times r \times$ EXPVALUE	Decomposition of exports at world prices
BI02	$t \times r \times r \times$ IMPVALUE	Decomposition of imports at market prices

Continued

Table 10.1 Data Headers in the GTAPView Data Summary File (Contd)

Header	Dimension	Description
BI03	$t \times r \times r \times r \times \text{MKTVALUE}$	Decomposition of <i>cif</i> values
CM01	$t \times \text{OUT} \times r$	Disposition of output
CM02	$t \times \text{SALES} \times r$	Disposition of domestic goods
CM03	$t \times \text{SALES} \times r$	Disposition of imported goods
CM04	$t \times r \times \text{OUTVALUE}$	Value of output at market prices
CM05	$t \times r$	Self-sufficiency or domestic share in total use
SF01	$d \times p \times r \times \text{DIR} \times \text{PURCHVALUE}$	Cost structure of firms
SF02	$t \times r \times \text{DIR} \times \text{PURCHVALUE}$	Cost structure of consumption
SF03	$t \times r \times \text{DIR} \times \text{PURCHVALUE}$	Cost structure of government

d number of demanded commodities ($d = t + e$)
e number of endowment commodities (primary factors)
p number of produced commodities ($p = t + I$)
r number of regions
t number of tradable commodities (sectors)

Table 10.2 Data Headers in the Tax Rates File

Header	Dimension	Description
RTF	$e \times p \times r$	% <i>ad valorem</i> rate, taxes on primary factors
RTFD	$p \times p \times r$	% <i>ad valorem</i> rate, taxes on firms' domestic purchases
RTFI	$p \times p \times r$	% <i>ad valorem</i> rate, taxes on firms' imports purchases
RTGD	$p \times r$	% <i>ad valorem</i> rate, government domestic purchases taxes
RTGI	$p \times r$	% <i>ad valorem</i> rate, government import purchases taxes
RTMS	$p \times r \times r$	% <i>ad valorem</i> rate, import taxes, by source
RTO	$n \times r$	% <i>ad valorem</i> rate, output (or income) subsidy in region <i>r</i>
RTPD	$p \times r$	% <i>ad valorem</i> rate, private domestic consumption taxes
RTPI	$p \times r$	% <i>ad valorem</i> rate, private import consumption taxes
RTXS	$p \times r \times r$	% <i>ad valorem</i> rate, export subsidies, by destination

e number of endowment commodities (primary factors)
n number of non-savings commodities ($n = t + e + I$)
p number of produced commodities ($p = t + I$)
r number of regions

10.2 Overview of ViewHAR

ViewHAR, developed by Mark Horridge of the Centre of Policy Studies of Monash University, allows the user to browse and extract the contents of *header-array* files such as the standard GTAP core data file (*basedata.har*) or the GTAPView output (*baseview.har*). It is particularly useful since it can display multi-dimensional matrices via an easy-to-use menu system.

The 4 basic steps in using ViewHAR are:

- Open the GTAP data base file
- Browse the data
- Create your table
- Export your table

Step 1: Open the data base file

We will use the data base file called *gsdview.har*. When opening this file with ViewHAR, a *Contents* page will first be displayed on your screen. With a simple double-click on one of the variables listed on the page (here we chose to take a look at CM01) you will be able to access the underlying data.

Header	Type	Dimension	Coeff	Total
3 AG01	RE	REG*GDPEXPEND	GDPEXP	31278602.00
4 AG02	RE	REG*GDPSOURCE	GDPSRC	31278602.00
5 AG03	RE	ENDW_COMM*PROD_COMM*REG	EVFA	28732958.00
6 AG04	RE	REG*CAPACCT	CAPITALACCT	1.42
7 AG05	RE	REG*CURACCT*TRAD_COMM	CURRENTACCT	-0.03
8 AG06	RE	REG	VKB	84751584.00
9 BI01	RE	TRAD_COMM*REG*REG*EXPVALUE	VALEXPORTS	6910229.00
10 BI02	RE	TRAD_COMM*REG*REG*IMPVALUE	VALIMPORTS	7375836.00
11 BI03	RE	TRAD_COMM*REG*REG*MKTVALUE	CIFDECOMP	7144870.50
12 CM01	RE	TRAD_COMM*OUT*REG	OUTDISP	58573836.00
13 CM02	RE	TRAD_COMM*SALES*REG	DOMSALESDISP	51441756.00
14 CM03	RE	TRAD_COMM*SALES*REG	IMPSALESDISP	7375835.50
15 CM04	RE	TRAD_COMM*REG*OUTVALUE	VALOUTPUT	58573836.00
16 CM05	RE	TRAD_COMM*REG	SUFFICIENCY	1017701.44
17 SFD1	RE	DEMD_COMM*PROD_COMM*REG*DIR*PURCHVALUE	NVFA	64265108.00

Double-Click on an item to view it (or arrow keys + space bar)

Always click on *Contents* from the upper menu bar to go back to the *Contents* page.

Step 2: Browse the data

Due to the nature of the GTAP model, the data provided often has three or more dimensions. In the example below, the variable called CM01 gives the disposition of output. Output of wheat (*wht*), for example, can be further broken down by destination of sales into domestic sales (*dom*), sales to the transport sector (*trans*) and sales to export markets (*export*).

Because the screen is 2-dimensional you can only select two dimensions to view at a time.

ViewHAR provides a drop-down box at the top right-hand corner to browse between the different regions you are interested in. The number of drop-down boxes is the dimension of the matrix (here 3-dimensional: traded commodity, output sales destinations, and regions).

If you want to compare the disposition of sales in different regions on the same table then you will first need to select only one commodity from the second right-hand drop-down box. In our example we selected *wht* for "wheat".

OUTDISP	1 dom	2 trans	3 export	Total
1 pdr	96443.7734	0	2070.4565	98
2 wht	79419.9141	0	16324.0439	95
3 gro	88954.1719	0	14279.8281	103
4 v_f	388679.3750	0	47035.6211	435
5 osd	55830.4922	0	15587.1523	71
6 c_b	34952.1797	0	52.6121	35
7 prb	31389.2969	0	8284.9170	39
8 ocr	172402.4688	0	39991.0586	212
9 cti	144199.9844	0	6129.6318	150
10 oap	286903.3750	0	15526.9863	302
11 rmk	171031.6250	0	186.6662	171
12 wol	15054.2100	0	2905.4265	17
13 frs	122181.9297	0	9842.3965	132
14 fsh	136353.5469	0	7727.2695	144

The next step would be to select All REG for 'all regions' from the third right-hand side drop-down box. And finally we get the disposition of sales of wheat by region.

OUTDISP	1 aus	2 nzl	3 xoc	4 chn	5 hkg	6 jpn	7 kor	8 twn	9 xea	All REG
1 dom	690.4336	40.8892	9.6677	9675.7861	8.4051	842.2103	1224.9944	3.0134	223.2154	Sum REG
2 trans	0	0	0	0	0	0	0	0	0	1 aus
3 export	1671.3624	2.3651	1.4922	53.2031	0.0308	0.7298	0.1335	0.9175	0.0513	2 nzl
Total	2361.7959	43.2543	11.1599	9728.9893	8.4359	842.9402	1225.1279	3.9309	223.2666	3 xoc

Step 3: Create your table

Because it is not easy to compare value data, ViewHAR provides the user with two other drop-down boxes on the left-hand side to create percentage tables. With the first drop-down box you can choose between calculating shares by row (as shown below) which gives you a last column full of 1.000 or by column which will give you a last row of 1.000!

CM01 Size: [wht] * OUT * REG Disposition of output - OUTDISP

	1 aus	2 nzl	3 xoo	4 chn	5 hkg	6 jpn	7 kor	8 twm	9 xea	10 idn	11 mys	12 phi	13 sgp
Row	0.0087	0.0005	0.0001	0.1218	0.0001	0.0106	0.0154	0.0000	0.0028	0.0000	0.0000	0.0000	0.0000
Col	0	0	0	0	0	0	0	0	0	0	0	0	0
Matrix	0.1024	0.0001	0.0001	0.0033	0.0000	0.0000	0.0000	0.0001	0.0000	0.0007	0.0000	0.0000	0.0001
Total	0.0247	0.0005	0.0001	0.1016	0.0001	0.0088	0.0128	0.0000	0.0023	0.0001	0.0000	0.0000	0.0000

You can also select the number of decimal places using the second left-hand side drop-downbox as demonstrated below.

CM01 Size: [wht] * OUT * REG Disposition of output - OUTDISP

	2 nzl	3 xoo	4 chn	5 hkg	6 jpn	7 kor	8 twm	9 xea	10 idn	11 mys	12 phi	13 sgp	14 tha	15
OUTDISP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 dom	9	0.001	0.000	0.122	0.000	0.011	0.015	0.000	0.003	0.000	0.000	0.000	0.000	0.000
2 trans	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 export	2	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Total	5	0.000	0.000	0.102	0.000	0.009	0.013	0.000	0.002	0.000	0.000	0.000	0.000	0.000

Step 4: Export

You can easily export the tables in ViewHAR to Spreadsheet programs using the *Export* command from the menu bar. Select *Copy* from the *Export* menu, this will copy the contents of your table to the clipboard. Then open a spreadsheet program (*Excel, Quattro Pro, etc.*) and select *Paste* from the *Edit* menu to paste the contents of the clipboard onto a new spreadsheet.